

# **Rapa Nui Landscapes of Construction Project (LOC1)**

**Fieldwork at Puna Pau and O Tu'u,  
2008**



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and Colin Richards**



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## Rapa Nui Landscapes of Construction

The Rapa Nui Landscapes of Construction Project (LOC) is funded by a grant from the Arts and Humanities Research Council in the UK. Based at the Institute of Archaeology, University College London, the project is directed by Sue Hamilton of UCL (principal investigator) and Colin Richards of the University of Manchester (co-investigator), in collaboration with Kate Welham of Bournemouth University (co-investigator). The University of the Highlands and Islands (Project Partner) is represented by Jane Downes.

On the Island, LOC works with Rapanui elders and students and in close cooperation with the *Corporacion Nacional Forestal* (CONAF), Rapa Nui, and the *Museo Antropológico P. Sebastián Englert* (MAPSE).

The main aim of the project is to investigate the construction activities associated with the Island's famous prehistoric statues and architecture as an integrated whole. These construction activities, which include quarrying, moving and setting up of the statues are considered in terms of Island-wide resources, social organisation and ideology.

The Project is not just concerned with reconstructing the past of the island, but is also contributing to the 'living archaeology' of the present-day community, for whom it is an integral part of their identity and their understanding and use of the island. LOC is working with the Rapanui community to provide training and help in recording, investigating and conserving their remarkable archaeological past. Fieldwork was undertaken under a permit issued by the *Consejo de Monumentos Nacionales*, Chile (ORN No 1699 CARTA 720 DEL 31 del 01.2008).



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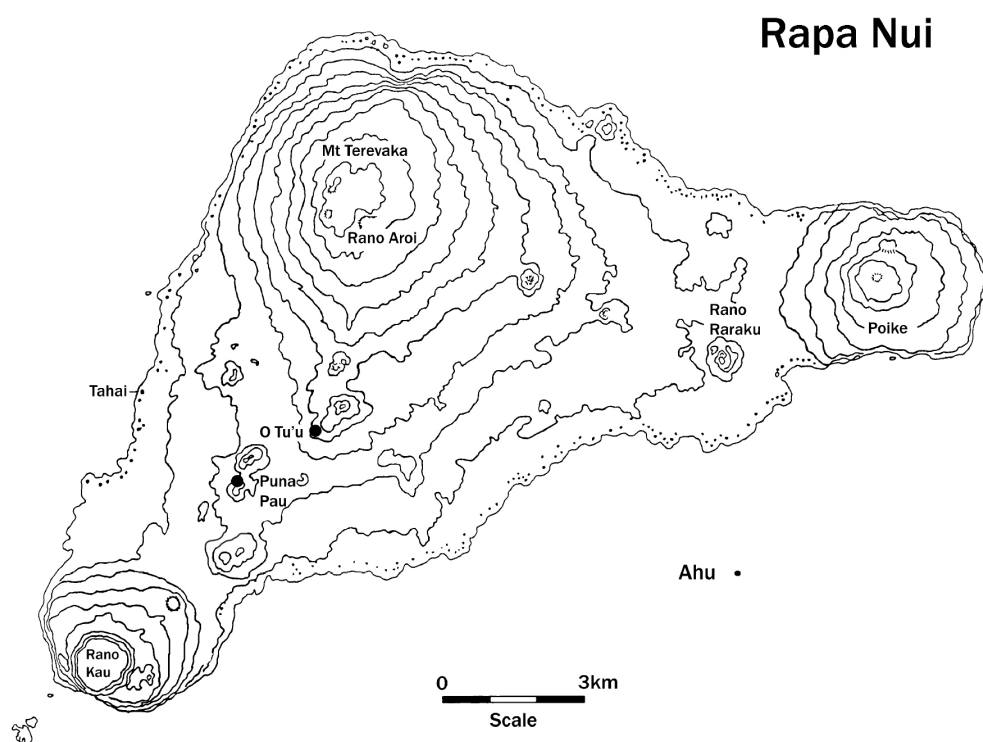
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# Fieldwork at Puna Pau and O Tuu

by Colin Richards

## 1. Introduction

The most prominent feature of the archaeology of Rapa Nui is the large stone statues (*moai*) that once stood upon stone platforms (*ahu*). On the many of the statue *ahu*, the heads of the *moai* were adorned with cylinder shaped stone topknots (*pukao*). The statues that stand on the *ahu* are therefore composite in having a body of Rano tuff and a topknot of red scoria. The vast majority of *moai* are sculpted from a distinctive volcanic tuff quarried from the inner and outer slopes of Rano Raraku crater, which is situated in the south-east of the island. Conversely, the *pukao* are sculpted from red scoria quarried from the crater of Puna Pau, situated in the southwest of the island. However, both quarries appear to have graduated from a number of 'local' *moai* quarries and the dominance of these quarries is a corollary of the development of Rapa Nui monumental construction as a social process.



**Figure 1.**  
*Map of Rapa Nui showing relevant sites*

Mainly in fragmentary condition, a number of apparently earlier, smaller *moai* have been identified across the western area of the island. Significantly, these statues are constituted of different types of volcanic rock, including black basalt, red scoria, black scoria, volcanic tuff, etc. Moreover,

many have been recovered from excavated *ahu* (frequently broken and incorporated in the platform structure) or within close vicinity to *ahu*, thereby indicating an earlier date.

Until now attention has mainly been placed on Rano Raraku, which is the only quarry to have seen any form of excavation (Routledge 1919; Skjölsvold 1961; Skjölsvold & Figuerroa 1989). Detailed archaeological survey has also tended to concentrate on Rano Raraku (e.g. Routledge 1919; Skjölsvold 1961; Cristino *et al.* 1981; Van Tilburg 1994), with little attention being placed on Puna Pau (but see Routledge 1919, 199 and Shephardson *et al.* 2004), and even less on other potential *moai* quarries, e.g. O Tu'u (Heyerdahl 1961, 510; plate 69 d – e). Given the geology of Rapa Nui, and the spatial distribution of known smaller fragmentary *moai*, it is suggested that individual social groups originally exploited local quarries and produced *moai* in different types of rock. However, this basic hypothesis remains to be examined or confirmed. Nonetheless, both Puna Pau and O Tu'u were exploited at an early period for what Heyerdahl (1961, 507–10) refers to as statues of 'aberrant' type.

As no excavation has taken place within the quarry at Puna Pau we possess no idea of the depth of the debris or the workings that are concealed. What is fascinating is that the line of *pukao* running down the outer slope of Puna Pau is extremely similar to the lines of horizontal *moai* leading away from Rano Raraku. This is highly suggestive of a formalized route or road leading from Puna Pau. Unfortunately, due to extensive quarry related activities, just as within the crater, the surface topography of the outer crater at Puna Pau is unreliable.

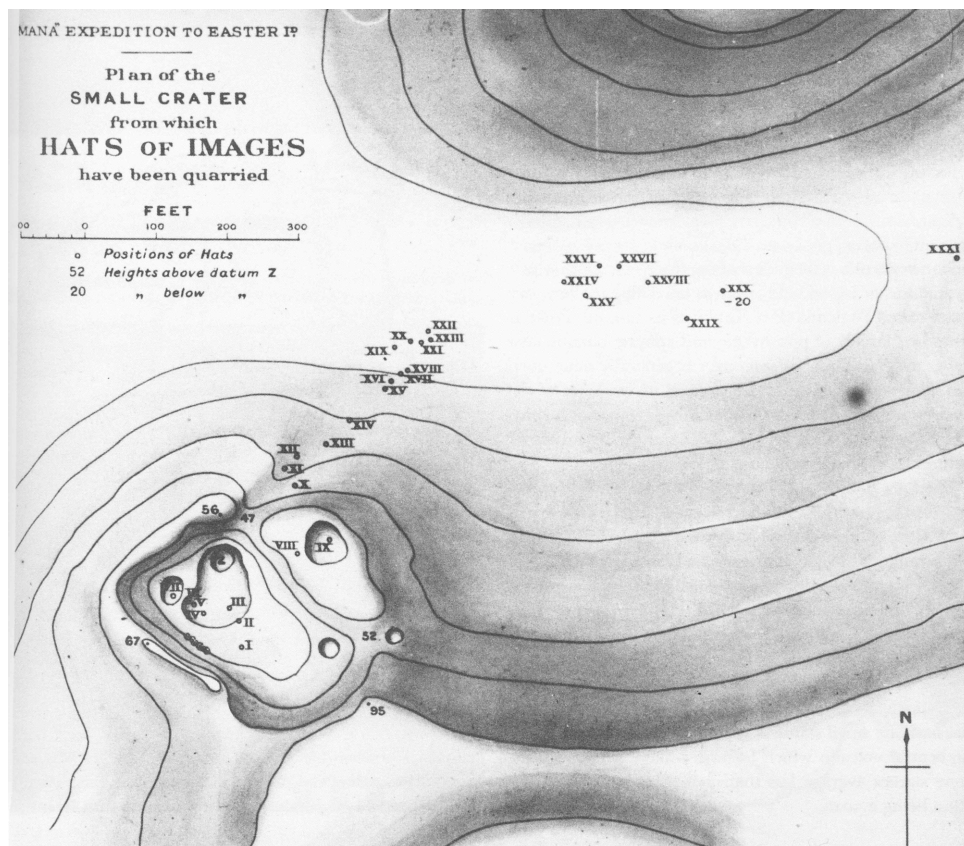
Hence, a main component of the first season of fieldwork was to conduct detailed survey at both Puna Pau and O Tu'u in order to characterize each site. Although both sites were visited the emphasis fell on Puna Pau where a range of geophysical survey was undertaken. Fieldwork at O Tu'u was restricted to partial planning; it is hoped that more detailed geophysical and topographic survey will be implemented as part of the 2009–10 field season.

## 2. Puna Pau *pukao* quarry

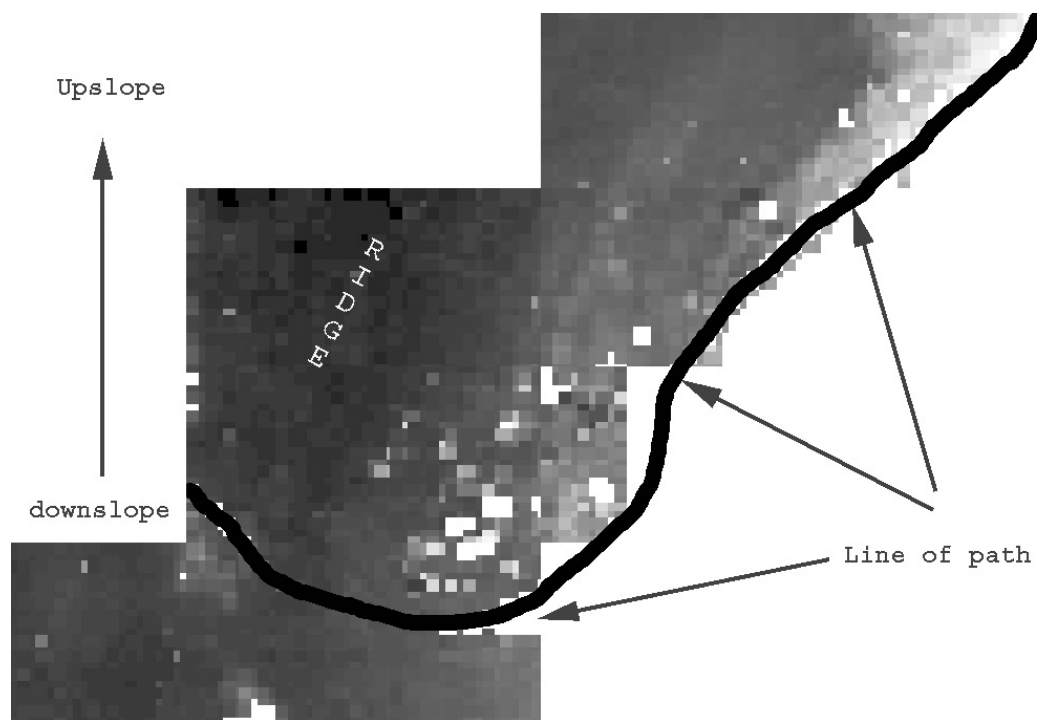
The main component of the 2008 investigation involved geophysical survey of the northern slope of the outer crater. This was undertaken on the basis of the unreliable appearance of the topography of this area of the quarry. Observation of the *pukao* running down the northern slope (*Figure 2*), revealed the angle of rest of the upper 5 *pukao* to be counter that of the surface topography. Therefore, horizontal plane resistivity and vertical plane tomography resistivity were employed to gain a better understanding of the sub-surface topography which appeared to have been substantially altered by quarry debris. A further aspect of this survey was to investigate the possibility of a prehistoric road running into Puna Pau from the northeast. This location for a road was indicated by the position of several *pukao*, now destroyed, running away from the northern slope through a narrow valley to the east (*Figure 3*).



**Figure 2.**  
Pukao running down the northern outer slope at Puna Pau (note the angle of rest counter to the surface topography)



**Figure 3.**  
Original survey of pukao at Puna Pau by the Routledge expedition. Pukao 24 - 31 have disappeared.  
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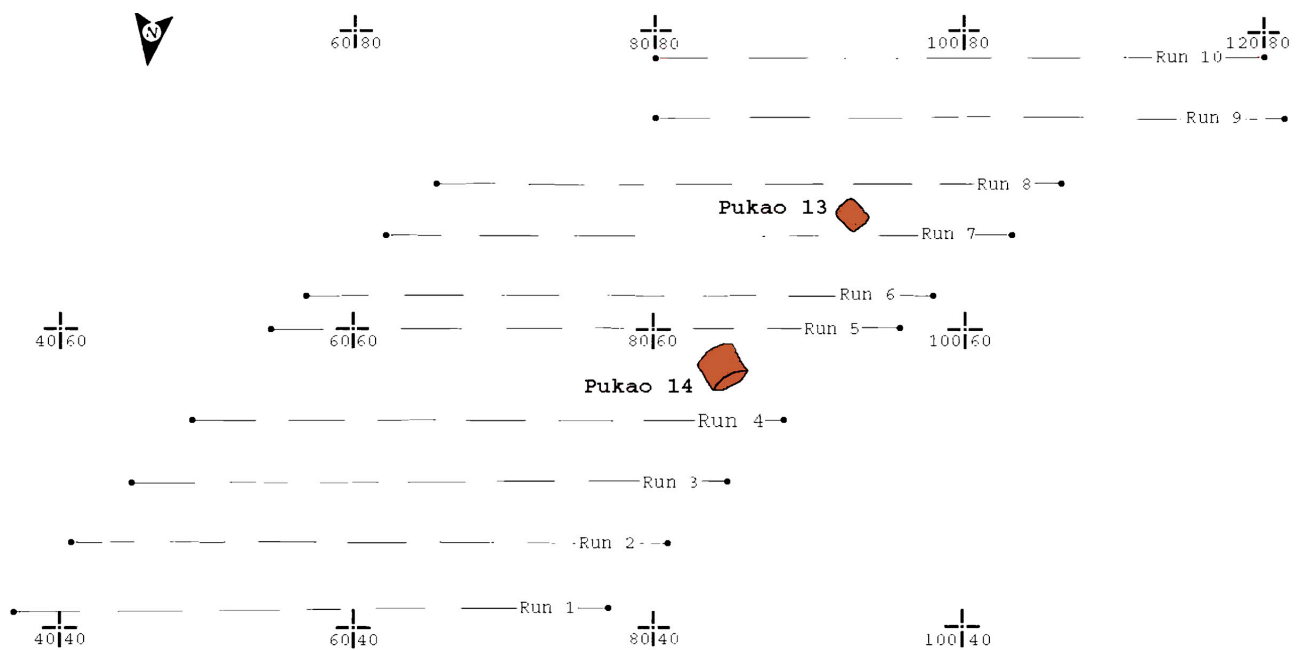
**Figure 4.**  
*Resistivity survey of northern outer crater slope (dark = high resistance; light = low resistance)*

Initially, conventional horizontal plane resistivity was undertaken across the lower northern slope of the outer crater (*Figure 4*). The resistivity survey confirmed the presence of underlying bedrock being responsible for a visible ridge running down-slope (north-south), which showed as a high resistivity anomaly. The slight depression running to the west of the ridge showed up as a lower resistance area suggesting deeper deposits. This would be consistent with the *pukao* apparently angled in a counter-slope position of rest. In order to gain greater understanding of the sub-surface topography, vertical resistivity, known as tomography was undertaken transversely across the slope (east-west). Ten 40m long, traverses were positioned across the northern slope of the outer crater (*Figure 5*). The advantage of this technique is greater vertical penetration that can reach depths of c. 5m.

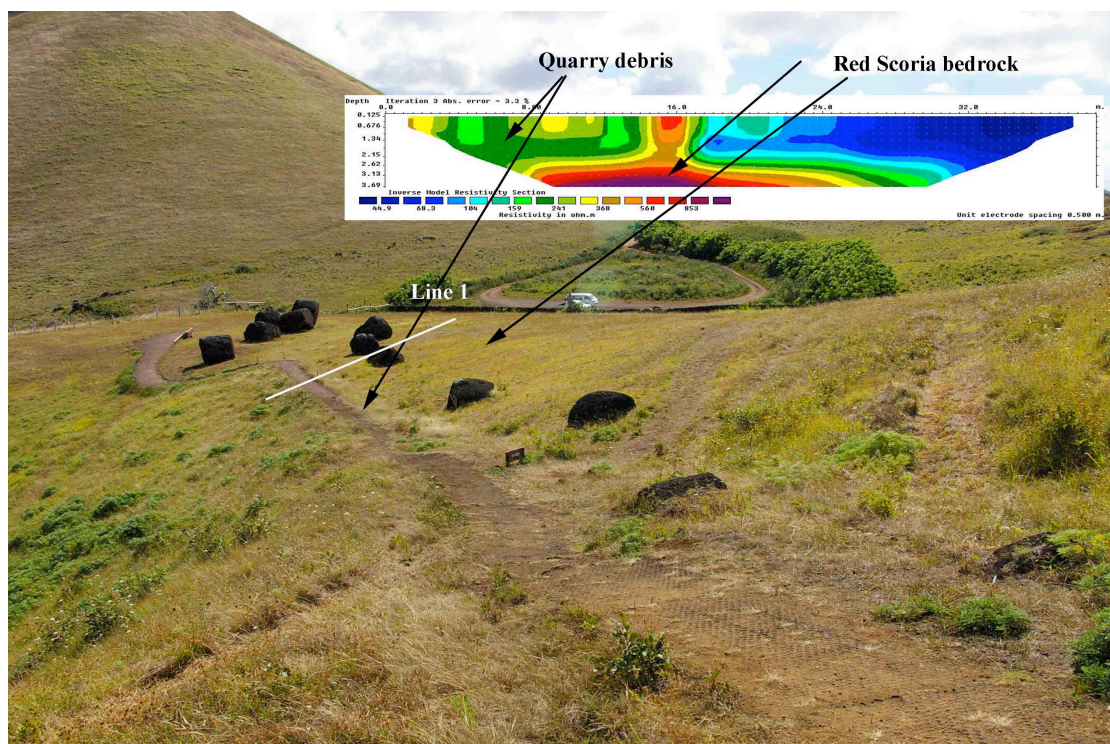
### **Results**

The results of the tomography survey appear to indicate that the slight 'trough' or depression running down-slope (north-south), adjacent to the path, represents a broader and deeper hollow way. That a greater depth of soil or debris exists in this area was hinted at by the results of the horizontal resistivity survey (*Figure 4*). The tomography reveals that a broad area, c. 3-5m wide, runs down slope at a shallower gradient than is visible today. This sub-surface depression may be interpreted in one of two ways. First, the



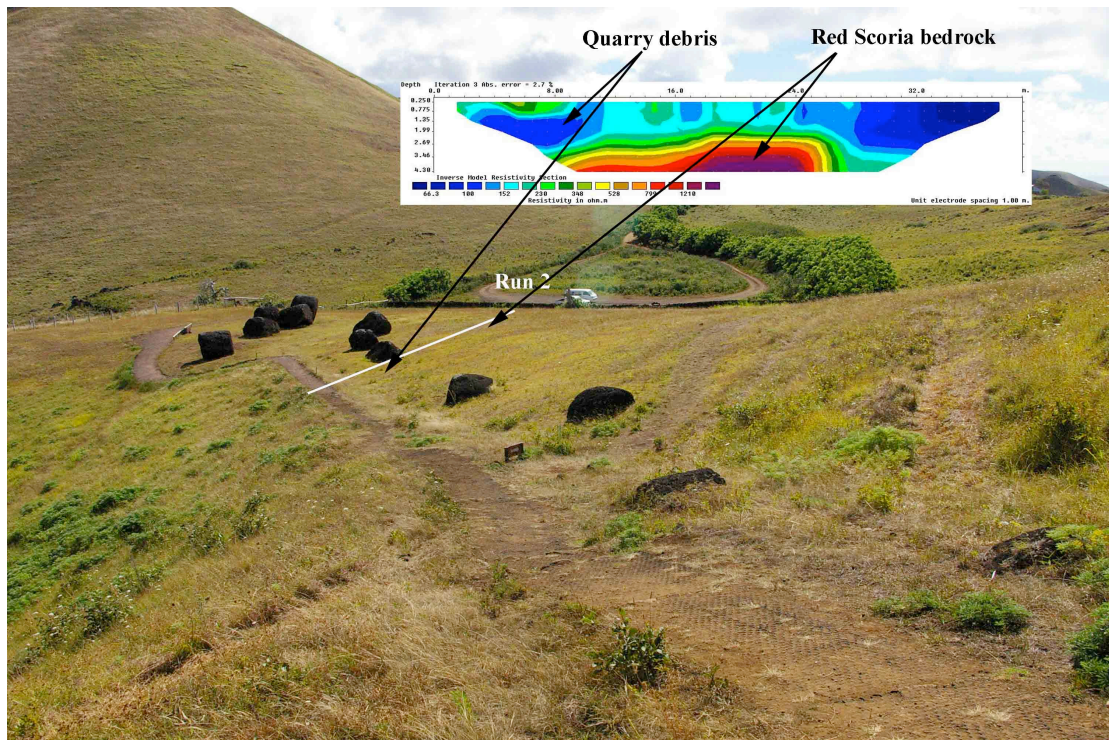


**Figure 5.**  
*Plan of position of 40m tomography traverses (readings taken west to east)*

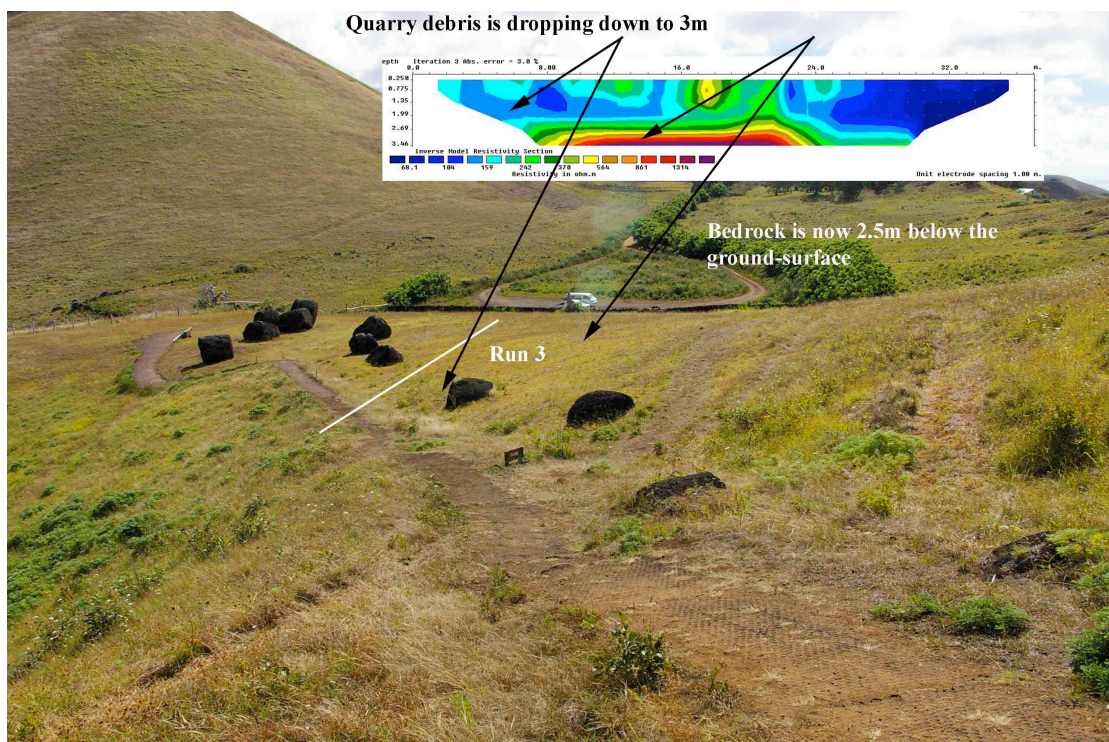


**Figure 6.**  
*Tomography run 1*



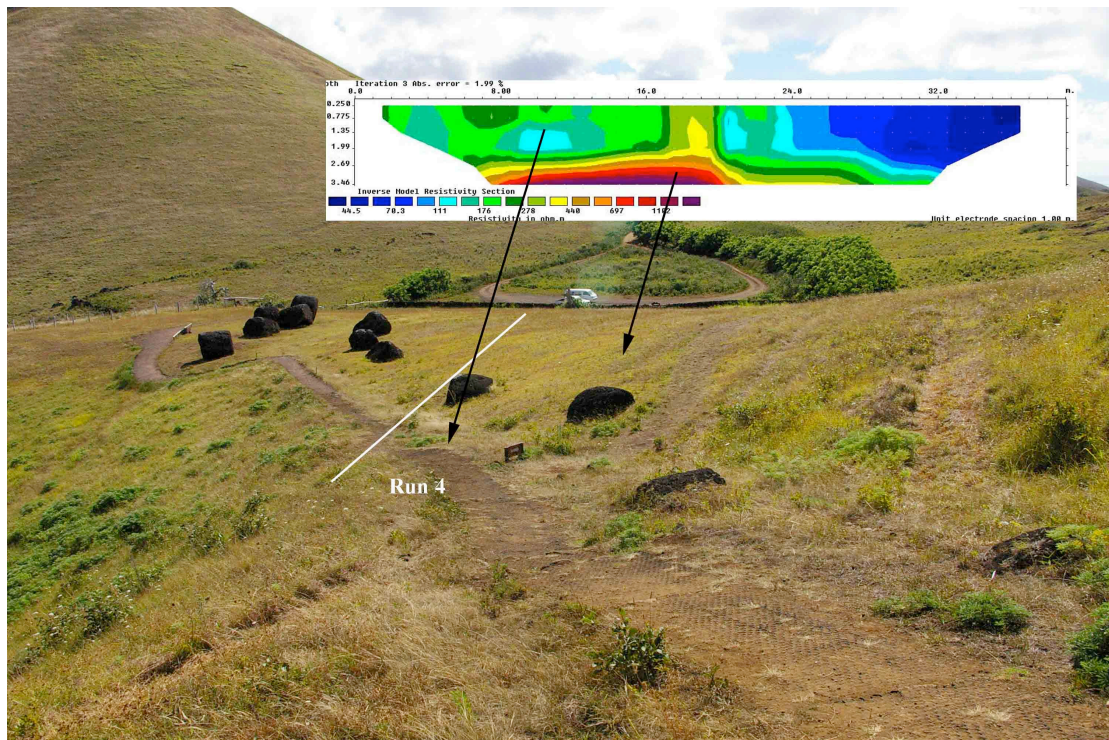


**Figure 7.**  
Tomography run 2

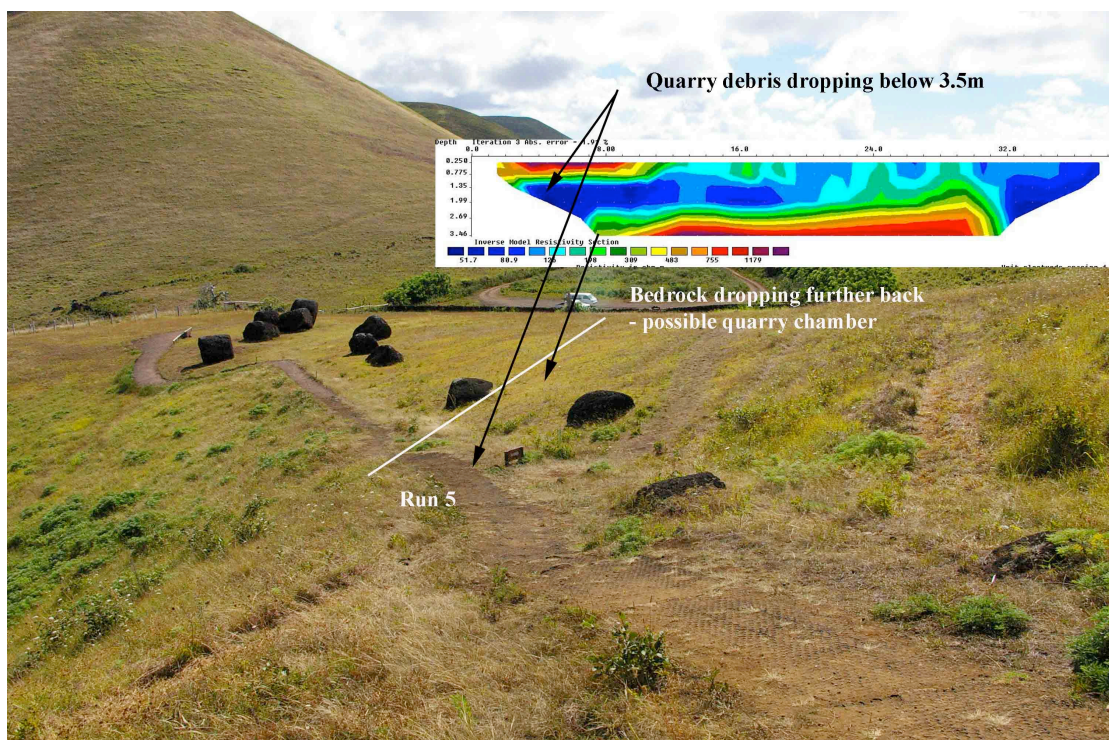


**Figure 8.**  
Tomography run 3



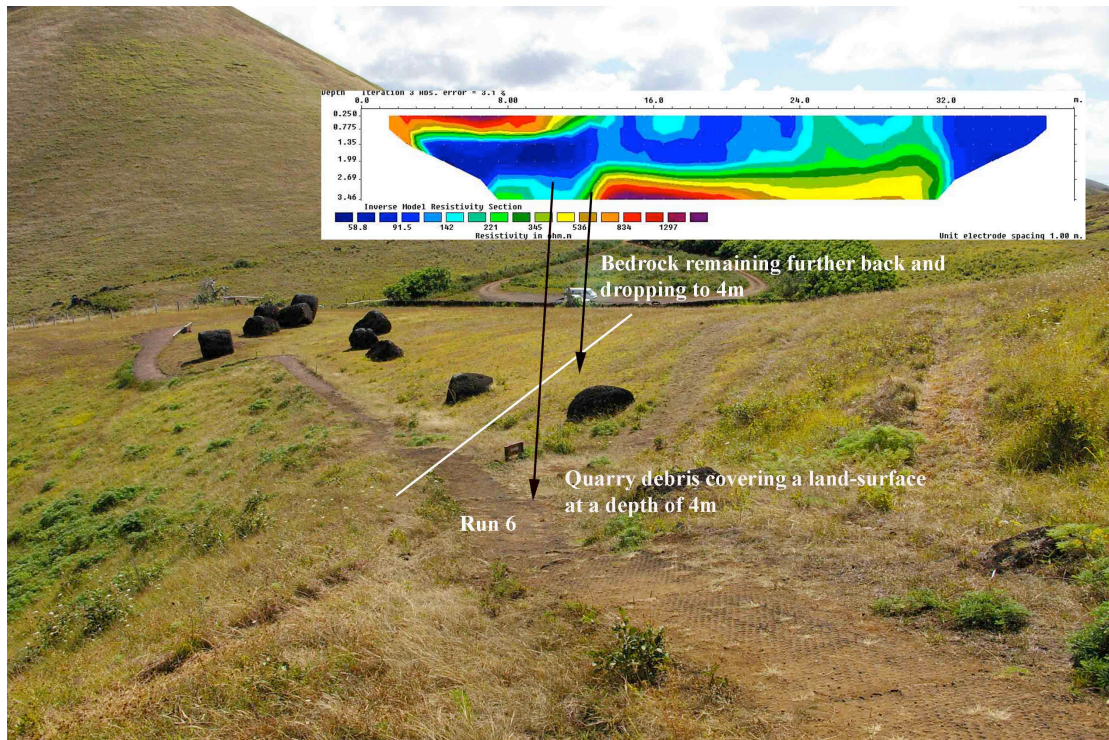


**Figure 9.**  
Tomography run 4

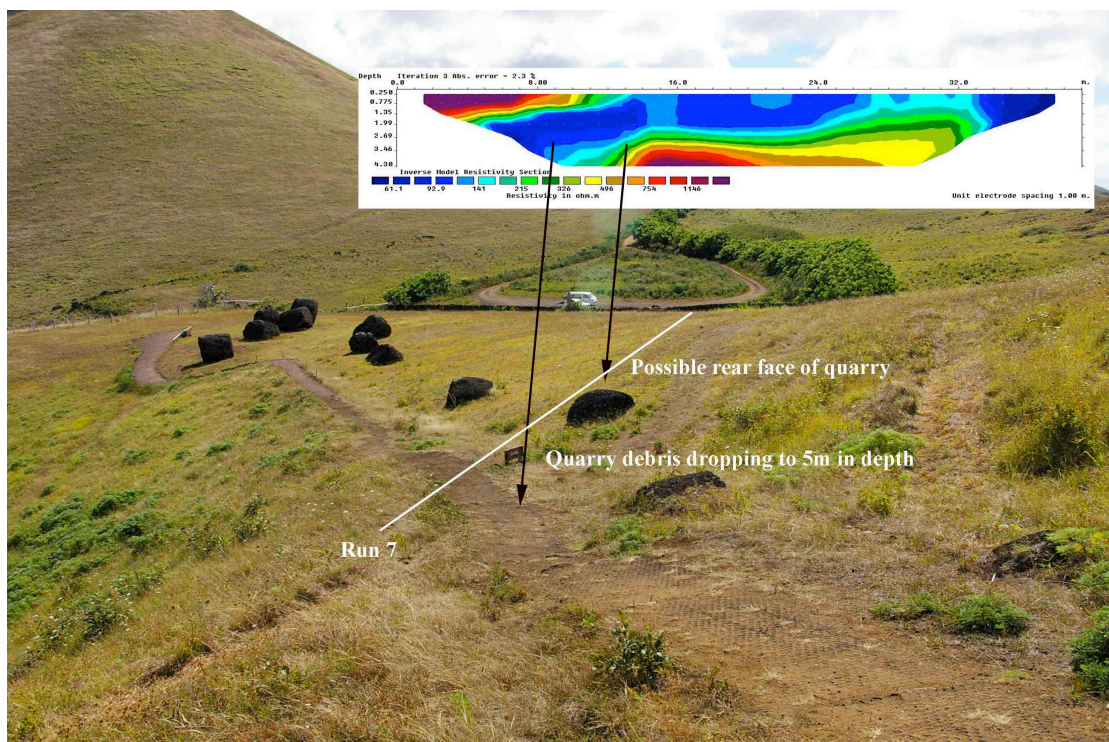


**Figure 10.**  
Tomography run 5



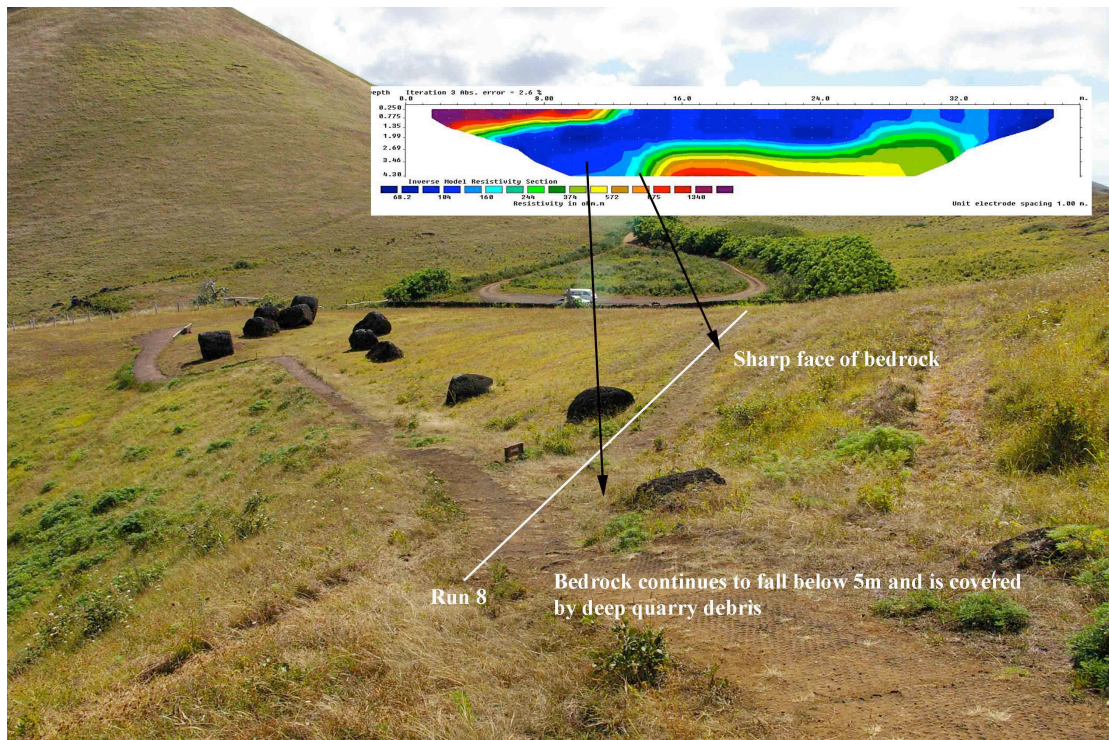


**Figure 11.**  
*Tomography run 6*

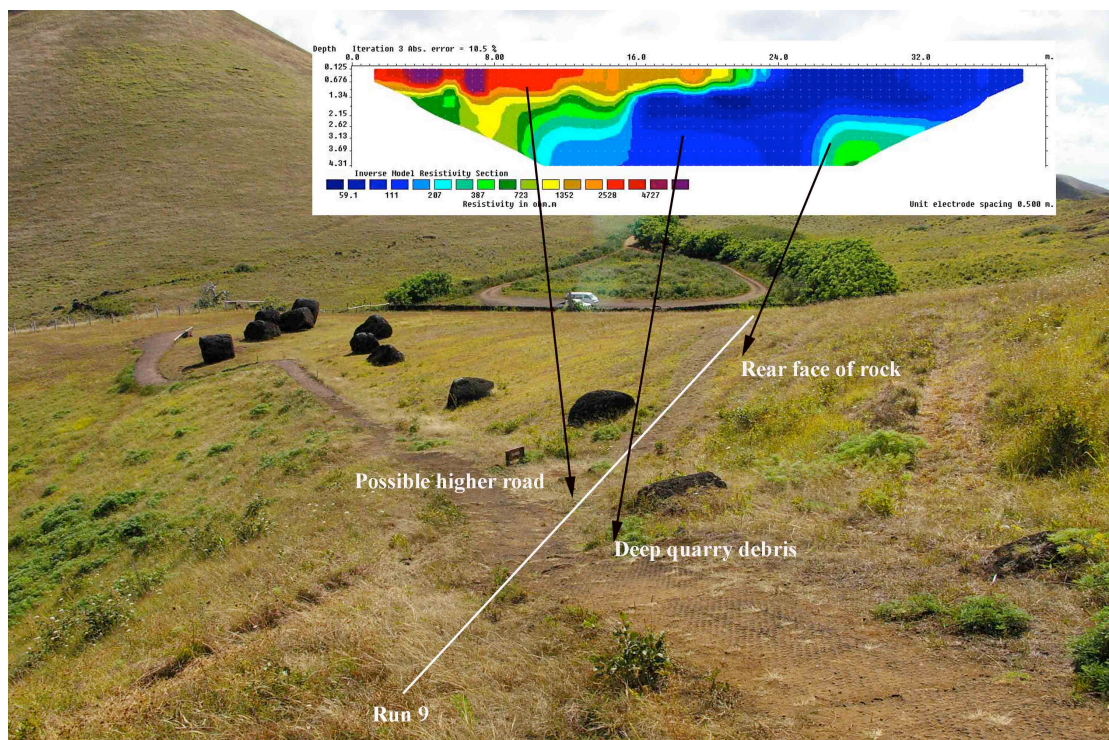


**Figure 12.**  
*Tomography run 7*





**Figure 13.**  
*Tomography run 8*



**Figure 14.**  
*Tomography run 9*



depression may represent a roadway running into the crater. The line of *pukao* visible today on the surface would effectively line the road. The missing *pukao*, visible and numbered on Routledge's plan (Figure 3), would therefore mark the route of the road as it runs eastwards through the valley between Maunga Tangaroa and Maunga Vai Ohao.

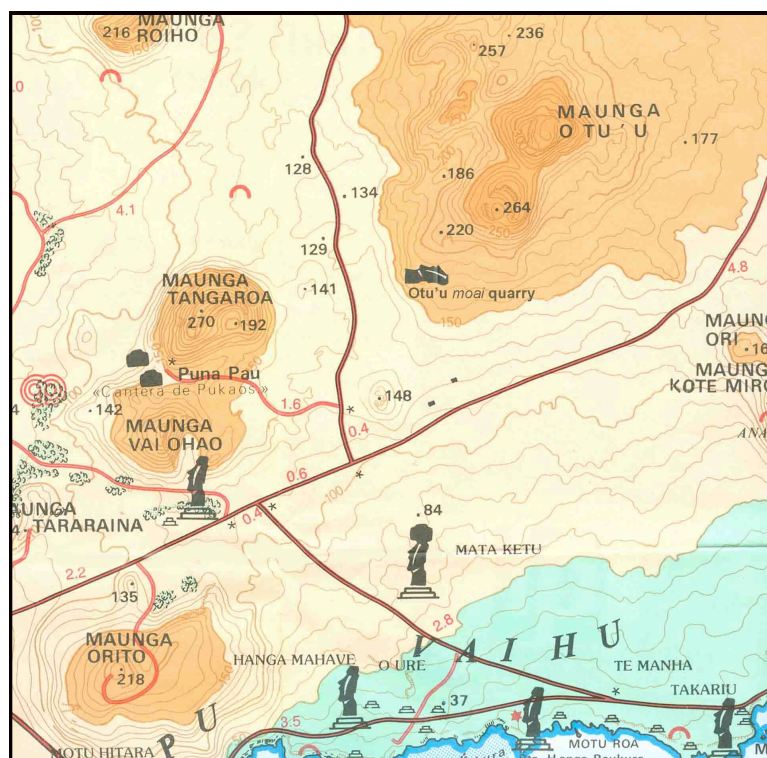
The second interpretation is that the depression is far less regular and represents quarry working on the northern outer slope of the Puna Pau crater. Within this line of reasoning the *pukao* are semi buried by quarry debris from these workings (which may be organized as a series of bays much like Rano Raraku), and higher workings on the crater lip.

Both surveys confirm the appearance of the northern outer slopes of Puna Pau to be modified by quarrying debris. This debris has masked either the presence of a road leading into the quarry or exterior quarry working. Further fieldwork involving Ground Penetrating Radar and trial excavation is planned for 2009 to resolve this question.

Survey team: Adrian Challands, Norma Challands, Susana Nahoe & Colin Richards

### 3. O Tu'u *moai* quarry

Limited survey was undertaken in 2008 at the smaller dark-red (black) scoria *moai* quarry at O Tu'u. An example of this material is a severed head form a *moai* visible today lying due south of the Tahai *ahu* complex on the western coast of Rapa Nui.



**Figure 15.**  
Location map of O Tu'u in relation to Puna Pau

Photographs of this site were first published by Heyerdahl (1961, plate 69 d & e) after initial identification by Englert (*ibid.*, 465). The site was documented by Claudio Cristino and Patricia Vargas during their island wide survey in the 1980s (Cristino *et. al.* 1981; pers. comm.). Heyerdahl recorded the name Tuu-Tapu for the quarry (1961, 465).

Outside Rano Raraku, O Tu'u is the only recognized quarry where *moai* remain attached to bedrock. The area of the scoria quarry appears to be limited to the inner summit of a small spur forming the western foothills of Maunga O Tu'u (*Figures 1, 15 & 16*). Again, requiring further investigation, numerous blocks of black basalt are strewn around the outer summit of the spur indicating a more complex history of quarrying than purely the exploitation of scoria at O Tu'u. The quarry is distinctive for having two *in-situ moai* adjacent to the main scoria outcrop (*Figures 17 & 18*). Today the visible scoria quarry appears relatively small in covering an area of no more than 15m diameter encompassing the scoria outcrop.

However, not only is there clear evidence for extraction across the outcrop itself, there is further indications of extraction in the form of surface depressions around the main outcrop (*Figure 17*).

All the surface evidence at O Tu'u indicates that substantial amounts of material have been quarried away. Therefore it is difficult to estimate just how extensive quarrying was at this site. The small area of the summit and the potential area of outcropping scoria would suggest a fairly small quarry. Debris, mainly of black basalt, does litter the slopes running down from the O Tu'u spur. Incorporated within this material are shaped bowls (*taheta*), again suggesting that this quarry is more complex than initial observation suggests. In particular, it provides some support to the idea that an early stage of Rapa Nui monumentality involved the exploitation of local quarries in the production of *moai* in different types of rock.

The basic identification of the other quarries supplying *moai* is crucial for the interpretation of the nature of earlier Rapa Nui society. Particularly, its broad spatial and temporal parameters, and the construction and constitution of local identities through the production of *moai* of different material composition. This notion of materiality assumes temporal and mythical depth in regard to group identities, land claims and ancestral representation.

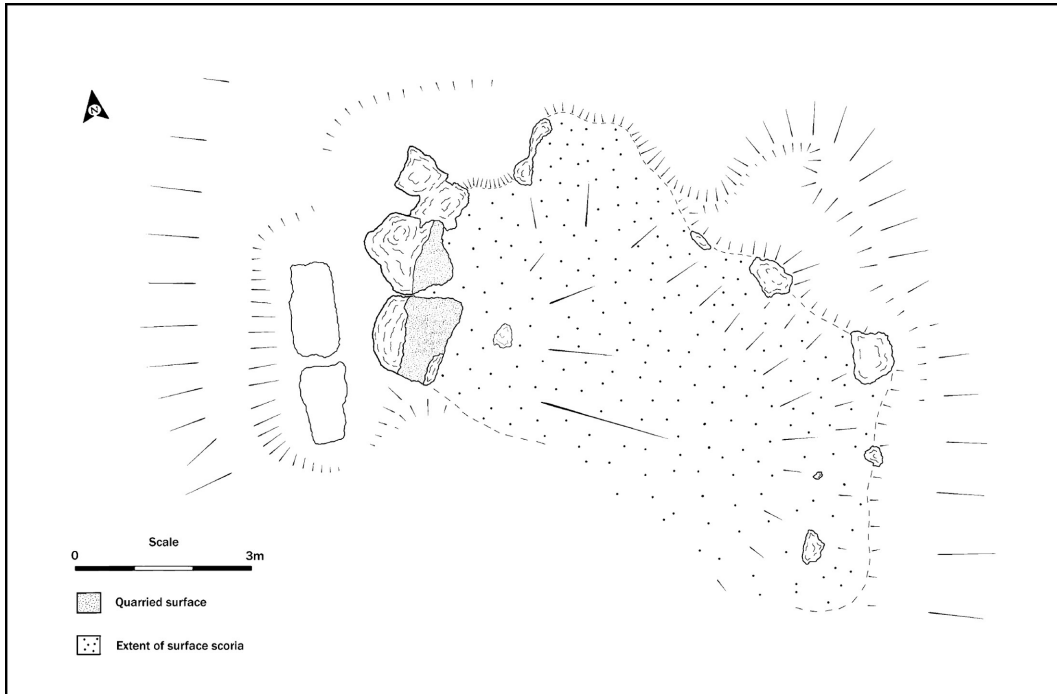
Further fieldwork is planned for 2009, involving geophysical survey and surface recording of the entire spur at O Tu'u. Further investigation of local *moai* quarries will continue with surface survey on the eastern slopes of Rano Kau where black basalt quarries have been reported.

## 4. Conclusion

Overall, the first season has been successful in providing further information regarding the nature of both Puna Pau and O Tu'u. The 2009 season of the project will continue the investigation of these sites, together with survey at Rano Kau, the southern *moai* road and selected *ahu*. It is also planned to record and describe the numerous '*toki*' quarries situated in the northern area of the island.



**Figure 16.**  
*Location of the scoria quarry on western foothills of Maunga O Tu'u*



**Figure 17.**  
*Plan of scoria quarry at O Tu'u. The two in situ moai are to the left (unshaded)*





**Figure 18.**  
*In-situ black scoria moai at O Tu'u*

Survey team: Adrian Challands, Norma Challands & Colin Richards

### **Acknowledgements**

We would like to thank CONAF, particularly Ricardo Crisostomo H. and Enrique Tucki, for their permission and support to undertake fieldwork within the National Park, specifically at Puna Pau. Claudio Cristino and Patricia Vargas kindly relocated O Tu'u site for further investigation. We would also like to thank the Rapa Nui Governor and Island Council for their permission, and the Museo Antropologico P. Sebastian Englert for their kind support. Fieldwork in 2008 was funded by the British Accademy.

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